I HEREBY CERTIFY THAT THIS CORRESPONDENCE IS BEING DEPOSITED WITH THE UNITED STATES POSTAL SERVICE AS FIRST CLASS MAIL IN AN ENVELOPE ADDRESSED TO: COMMISSIONER FOR PATENTS, P.O. BOX 1450, ALEXANDRIA, VA 22313-1450, ON THE DATE INDICATED BELOW.

By: _____ Date: _____

MAIL STOP AF

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Patent Application of: Shuo-Yen Robert Li			
Conf. No.:	8415	Group Art Unit:	2616
Appln. No.:	09/882,413	Examiner:	Man U Phan
Filing Date:	June 15, 2001	Attorney Docket No.:	681954-118US (P-11930059)
Title:	MULTICAST CONCENTRATORS		

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Applicant requests review of the final rejection mailed October 5, 2005 in the above-identified application. No amendments are being filed with this request. This request is being filed with a Notice of Appeal. The review is requested for the reasons stated on the attached sheets.

Respectfully submitted,

SHUO-YEN ROBERT LI

April 5, 2006 By: _____
(Date)

LOUIS SICKLES II
Registration No. 45,803
AKIN GUMP STRAUSS HAUER & FELD LLP
One Commerce Square
2005 Market Street, Suite 2200
Philadelphia, PA 19103-7013
Telephone: 215-965-1200
Direct Dial: 215-965-1294
Facsimile: 215-965-1210
E-Mail: lsickles@akingump.com

LS
Enclosures

REMARKS IN SUPPORT OF PRE-APPEAL BRIEF REQUEST FOR REVIEW

Claims 4-11, as amended, are pending in this application. Claims 1-3 have been canceled. Claims 10-11 are allowed. Claims 4 and 9 stand rejected under 35 U.S.C. § 103 as being unpatentable over U.S. Patent No. 6,335,930 (Lee) in view of U.S. Patent No. 5,940,389 (Yang et al.). Claims 5-8 are objected to a being dependent upon a rejected base claim.

Claim 4 recite, in-part:

> *An m-to-n multicast concentrator for routing input signals, each of the input signals being 0-bound, 1-bound, bicast, or idle, the concentrator comprising; ... means, responsive to the input signals, for routing the maximum possible total number of 0-bound and bicast ones of the input signals to the 0-output group and the maximum possible total number of 1-bound and bicast ones of the input signals to the 1-output group.*

A. Lee does not teach or suggest a multicast concentrator as recited in claims 4 and 9.

In the final Office Action, Examiner characterizes the NxN interconnection network in Fig. 6 of Lee as a multicast switch. In the Examiner's Response to Amendment and Argument, the Examiner appears to state that the 3X3 switching element disclosed by Lee (Fig. 5) is a multicast switching element merely because it has three inputs and three outputs. In the Advisory action, the Examiner appears to be stating that any mxn switch could be a an mxn concentrator. Applicant submits that this is clear error.

Definition: In a network, multicasting is a technique that allows data, including packet form, to be simultaneously transmitted to a selected set of destinations. (See Federal STD 1037C, Glossary of Telecommunications Terms, 1996).

Definition: Multicasting is the process of whereby a single message is sent to multiple network destinations. (See IEEE 100, Seventh Edition, p712).

Definition A2: "point-to-point connection state" and "multicast connection state". A connection state $T_0, T_1, T_2, \ldots, T_{m-1}$ from the array Inputs to the array Outputs is said to be a "point-to-point connection state" if every set Tj contains at most one element; otherwise, the connection state is called a "multicast connection state".(See page 24 of the application).

Definition H4: "m-to-n multicast concentrator". For n<m, an mxm switch having a "0-output group" comprising the m-n outputs with the smallest addresses, that is, from 0 to m-n-1, and a "1-output group" comprising the remaining n outputs and receiving 0-bound, 1-bound, idle

and bicast input signals is called an m-to-n "multicast concentrator" if it routes the maximum total number of 0-bound and bicast signals to the 0-output group and the maximum total number of 1-bound and bicast signals to the 1-output group. (See pages 123-124 of the application).

Definition: Group: two or more figures; a number of individuals; an assemblage of related organisms, Merriam Webster's Collegiate Dictionary. Tenth edition, p515.

Claims must be given their broadest reasonable interpretation consistent with the specification. The broadest reasonable interpretation must also be consistent with the interpretation that one skilled in the art would reach. (MPEP 2111). When the specification provides definitions for terms appearing in the claims, the specification can be used in interpreting the claim language. (MPEP 2111.01-I). An Applicant is entitled to be his own lexicographer. (MPEP 2111.01-III). Any terminology in the preamble that limits the structure of the claimed invention must be treated as a claim limitation. (MPEP 2111.02-I).

Applicant first submits that an mxn switch is not in general an mxn concentrator. An mxn concentrator is a specific kind of mxn switch in which the outputs of the switch are divided into two groups, a 0 bound group and 1-bound group. Thus, an mxn concentrator must have at least two 0 bound outputs and at least two 1 bound outputs. Lee does not teach or suggest a switch having multiple 0 bound outputs and a multiple 1 bound outputs. Thus Lee is not an mxn concentrator

Interpreting claim 1 to be consistent with the ordinary meaning of the term "multicast" requires that a multicast switch be capable of simultaneously transmitting a single message received on a single input to more than one destination. Applicant further submits that he is entitled to be his own lexicographer, further narrowing the meaning of multicast, because he has clearly defined the terms "multicast" and "multicast concentrator" with clarity, deliberateness and precision to give one of ordinary skill in the art notice of the specialized meaning attributable to the term multicast concentrator.

Lee discloses a bypassing Omega network Each switch element in the network includes M-X input ports and X bypassing ports and M-X output ports and X bypassing ports. An input packet is routed to an output bypassing port of a switch element as a result of contention by the input packet with (or more) other input packets for the same output port (col. 10, lines 4-8).

Applicant is unable to find any teaching that discloses or suggests Lee's invention is capable of routing a single signal on a single input port to a plurality of outputs, as required by a multicast concentrator. As one skilled in the art would understand, in order for a switch to be capable of multicasting, the switch must have at least one switching state in which a single input is connected to more than one output. At col. 8, lines 26-39, the basic switching element 500 of Lee's switch is described as a 3x3 switch without any reference to simultaneously connecting an input to more than one output. Further, each example in the reference, (e.g. col. 9, line 58 to col. 11, line 28, and Figs. 7, 9 and 10), describes point-to-point switching and does not teach or suggest that the 3X3 switch used by Lee has a switching state that simultaneously connects a single input to more than one output. Also, the operation of Lee's switch does not depend on the 3X3 switch element being capable of multicasting. Additionally, there is not one occurrence of the terms "multicast" or "multicasting" in Lee. The switch disclosed by Lee does not provide the structure or the function of a multicast concentrator. Because the switch described by Lee does not teach or suggest at least one switch state that connects a single input to a plurality of outputs, the switch disclosed by Lee can not be characterized as a switch which provides multicast switching as asserted by the Examiner.

B. The combination of Lee and Yang et al. does not disclose means, responsive to the input signals, for routing the maximum possible total number of 0-bound and bicast ones of the input signals to the 0-output group and the maximum possible total number of 1-bound and bicast ones of the input signals to the 1-output group as recited in claims 4 and 9.

The Examiner states that in the Final Office Action that Lee does not expressly disclose bicast signals for routing in a multistage interconnection network but that Yang et al. discloses at col. 10, lines 32-53, a system where the control circuit generates tags and the comparator generates different control sequences such as '00' and '11', corresponding to 0 bound and 1 bound values, and '01' and '10' correspond to bicast values. The Examiner states that it would have been obvious to a person of ordinary skill in the art at the time the invention was made to apply Yang et als.' algorithm into Lee's network. Applicant submit that this is clear error.

a. Yang et al. does not teach or suggest routing a bicast signal as recited in claims 4 and 9. As described at col. 10, lines 40-42, the beta element in the ith stage of a path is controlled by a single bit r_i of the routing tag. As described at col. 10, lines 42-44, if ri = 0, the beta

element routes the signal to the upper output terminal. If ri =1, the beta element routes the signal to the lower output terminal. As described at col. 10, lines 48-53, the values 00, 01, 10 and 10 cited by the Examiner are clearly the values of the routing tag for controlling the switching of the signal through two consecutive beta elements and not the values for controlling a single stage.

One skilled in the art would understand (see pages 207-209 of the application) that in order for a switch element to be controlled to each one of four states, as required for multicasting, the control value for each stage must be a quaternary symbol (e.g. two bits). Yang et al. discloses a switch using beta elements controlled by a single bit. As further shown in Fig. 11, the network disclosed by Yang et al. routes a unicast signal. Accordingly, Yang et al. and clearly does not teach or suggest routing a bicast signal as recited in claims 4 and 9.

b. Where means plus function language is used to define the characteristics of a machine or manufacture invention, claim limitations must be interpreted to read on only the structures or materials disclosed in the specification and "equivalents thereof." (MPEP 2106). Yang et al does not teach or suggest any means for routing a bicast signal much less the specific means described in the specification. Yang et al. merely discloses a beta element which can only be set to a bar or a cross state (col. 10, lines 29-32). Thus, a signal at an input of each Yang et als'. cells can be routed to only one or the other of the output ports. (Note that Lee also can only route an input signal to a single output port.) In contrast, as described at pages 168-170 and figures 65D and 65E of the application, a bicast cell provides for outputting a bicast signal to both of the output ports of the bicast cell.

Lee does not teach or suggest a multicast concentrator. Yang et al. does not make up for this deficiency.

Further, neither Lee nor Yang et al. teach or suggest means, responsive to the input signals, for routing the maximum possible total number of 0-bound and bicast ones of the input signals to the 0-output group and the maximum possible total number of 1-bound and bicast ones of the input signals to the 1-output group, as recited in claims 4 and 9. Thus, the combination can not possibly teach or suggest all the limitations of claims 4 and 9. Accordingly, it is clear error to combine Lee and Yang et al. to reject claims 4 and 9 under 35 U.S.C. § 103.